

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

San Diego Gas & Electric Company,
Complainant,

v.

Docket No. EL00-95-045

Sellers of Energy and Ancillary Service Into
Markets Operated by the California
Independent System Operator Corporation
and the California Power Exchange,
Respondents.

Investigation of Practices of the California
Independent System Operator and the
California Power Exchange

Docket No. EL00-98-042

**ORDER ADOPTING REVISED JOINT STIPULATION OF ISSUES
ON MMCP ISSUES**

(Issued March 11, 2002)

1. This order confirms my ruling at today's prehearing conference adopting a revised Joint Narrative Stipulation of Issues (JS) filed on March 9, 2002 with regard to the mitigated market clearing price issues (mmcp) set for hearing and is reproduced in the Appendix. The JS shall apply to adjudication of these issues subject to further rulings and orders. A separate JS which pertains to section 202(c) issues will be filed later this week and, when adopted, will govern adjudication of those issues.

Bruce L. Birchman
Presiding Administrative Law Judge

APPENDIX

STIPULATED ISSUES

I. How are the mitigated market clearing prices (“MMCPs”) determined for each 10-minute interval during the refund period?

A. What is the applicable formula for determining the MMCPs for each interval?

All Parties’ Position: The Commission has required the following formula to be used in this hearing to determine the MMCP for each interval during the refund period:

$$MMCP = (\text{Heat Rate} \times \text{Gas Price} + \$6.00) \times 1.1 \text{ (beginning January 6).}$$

B. What is the appropriate heat rate data set for each unit eligible to set the MMCP that should be referenced for insertion in the MMCP Formula?

1. Should average and/or incremental heat rate curves be used in the determination of the MMCP?

ISO Position: Incremental heat rate curves should be used to calculate the MMCP. (ISO-5 at 21:20-24, 33:3-38:17; ISO-19 at 15:4-29:27).

The California Parties Position¹: The Commission's orders require an analysis of the marginal cost in the real time Imbalance Energy market -- the marginal cost can only be evaluated by looking at the incremental heat rate. (CAL-19 at 7:19 to 9:13; CAL-6 at 7:5 to 9:25; CAL-21 at 11:18 to 13:12; CAL-21 at 16:9 to 17:14; CAL-21 at 19:14-22:2; CAL-21 at 29:11 to 31:14 (ending with “rates”); CAL-21 at 32:3 to 39:4; CAL-21 at 44:3 to 50:3; CAL-26 at 3:16 to 4:22; CAL-26 at 9:8 to 13:23; CAL-26 at 15:21 to 18:24).

California Generators’ Position²: Actual average rather than incremental heat rate curves should always be used, to ensure that actual running costs in the interval are

¹ The California Parties are, collectively, the Attorney General for the State of California (Attorney General), the California Electricity Oversight Board (EOB), the California Public Utilities Commission (CPUC), Pacific Gas and Electric Company (PG&E), Southern California Edison Company (Edison) and San Diego Gas & Electric Company (SDG&E).

² The California Generators are, collectively, Duke Energy, Dynegy, Mirant, Reliant, and Williams.

recovered. (GEN-1 at 5:15-20; 7:12-15:2; 16:7-19:11; recovered. GEN-23 at 4:11-5:6). At a minimum, average heat rates should be used when a unit is running solely to respond to an ISO dispatch instruction. (GEN-19 at 17:14- 19:48; GEN-23 at 5:9-6:8).

9 *Enron's Position:* Average heat rate curves must be used given the predominate characteristics of generation units selected as marginal and the FERC goal of recreating competitive market outcomes. (ENR-1 5:w18 to 11:5; ENR-1 12:9 to 16:4 and ENR-1 19:15 to 22:6).

10 *Sellers' Position*³ Average heat rates generally should be used. Incremental heat rates should not be used to determine MMCP unless the incremental heat rate exceeds the corresponding average heat rate for a specific unit of output. (SEL-1, page 19, lines 4-5 and page 19, line 19 - page 27, line 17).

11 *Powerex Corp.'s Position:* Average, not incremental, heat rates should be used to determine the MMCP. (PWX-1 at 5:10-12, 5:20 to 6:1, 6:23 to 7:1, 9:10 to 12:6, 17:4 to 19:12; PWX-5 at 5:5 to 6:21, 14:10-13, 14:17 to 16:21).

12 *PPL Parties' Position:* Use of average heat rates is necessary to replicate market outcomes, under which sellers would have priced so as to recover fully their short-run marginal costs. Use of incremental heat rates would not allow the necessary recovery. (PPL-1 at 7:11 - 12:11).

13 *Arizona Electric Power Cooperative, Inc. Position:* Average heat rate curves should be used in those hours where simple cycle turbines would not have been dispatched at all but for spot sales to the ISO and others (AEP-12 at 10:6-11:7).

14 *Pasadena's Position:* Average heat rate curves should be used. (PAS-1A at 7:11-12:2; PAS-2; PAS-3)

15 *Modesto Irrigation District (MID) Position:* MID believes that the proper heat rates to be applied in calculating the Mitigated Market Clearing Price are the average heat rates over the hour. (Ex. MID-1 at 3:9 to 4:18 (Jackson)).

16 *Staff Position:* The Commission intended for incremental heat rate curves to be used to develop the MMCP. (S-26 at 19:9-22:22 and 32:3-33:11).

17 2. Which heat rate source data should be used and are the data accurate?

18 *All Parties' Stipulation:* The Parties have stipulated to the use of the base heat

³ Sellers are, collectively, Avista Energy, BP, Coral Power, LLC, IDACORP, Puget and Sempra Energy Trading Corp. Sellers are sponsors of the testimony of Dr. Charles J. Cicchetti.

and EL00-98-042

rate data supplied by generators pursuant to the April 26 Order as modified by the Stipulation as to Heat Rates and Non-Natural Gas Generation entered into in this proceeding ("Heat Rate Stipulation").

19 *Staff Position:* Staff also disagrees with Pasadena's proposal to include
20 minimum load fuel costs. (S-26 at 29:20-30:19).

20 **3. If incremental heat rate curves are used, should they be
21 adjusted to be monotonically non-decreasing?**

21 *ISO Position:* The ISO adjusted incremental heat rate curves so that a unit's
22 incremental heat rate curve never decreases as the operating level of the unit increases.
23 The ISO did so in order to ensure consistency with the ISO's market design and software
24 used to implement the June 19 Order, but the ISO does not contend that it is necessary to
25 have monotonically non-decreasing heat rate curves during the refund period. (ISO-5 at
26:16-27:21; ISO-20 at 8:1-9:7).

22 *The California Parties Position:* The monotonically non-decreasing constraint
23 imposed on heat rates by the ISO is an improper adjustment that artificially increases the
24 level of the heat rates used in calculating the MMCP. (CAL-1 at 16:14 to 18:10).

23 *California Generators' Position:* Incremental heat rates should not be used,
24 leaving no reason to reach the question whether the incremental heat rates should be
25 adjusted to become monotonically non-decreasing. See I.B.1 above. It is "less wrong,"
however, to use monotonically non-decreasing incremental heat rates than to use
unadjusted incremental heat rates. Hence, if incremental heat rates were used—for
example, under the "mixed heat rate" approach—it would be appropriate to use
monotonically non-decreasing incremental heat rates. (GEN-23 at 5:9-6:8).

24 *Enron's Position:* The use of incremental heat rate curves in the ISO
25 Methodology is inconsistent with economic theory. (ENR-11:7 to 14:3). The use of
monotonically non-decreasing heat rates in the ISO Methodology is flawed, as it is only
required under a hypothetical dispatch methodology contrary to the Commission's Orders.
(ENR 1 18:8 to 22:6).

25 *Powerex Corp.'s Position:* Monotonically non-decreasing heat rates should not
be used. Average heat rates should be used. (PWX-1 at 9:10 to 12:5, 17:4 to 19:12;
PWX-5 at 5:5 to 6:21, 14:10-13, 14:17 to 16:21; PWX-52 at 2:21-24; 4:16 to 7:2).

26 *Staff Position:* Staff agrees with the testimony of the generators and the
California parties in opposition to adjustment of incremental heat rates to be
monotonically non-decreasing. (S-26 at 34:19-36:23).

27 **C. At what operating point on the heat rate curve should a unit's heat rate
be taken for insertion into the MMCP Formula?**

28 *ISO Position:* The actual incremental heat rate for units dispatched during each
10-minute interval should be based on the Acknowledged Operating Target ("AOT") for
each unit. The AOT is defined as the Final Hour-Ahead Schedule for Energy submitted for
each unit, plus any real-time Energy dispatched by the ISO during that hour. (ISO-1 at 28:6-
33:4; ISO-19 at 33:19-39:15).

29 *The California Parties Position:* The ISO properly determined the heat rate by
considering the Acknowledged Operating Target of a unit, which is the operating point that
results from the ISO's decisions to dispatch the unit in the BEEP stack. (CAL-1 at 3:11-
19; CAL-19 at 2:10-12).

30 *California Generators' Position:* The heat rate should be determined at the
actual operating level of each unit during each interval, not at a hypothetical target
operating level (i.e., the AOT) estimated by the ISO through selective inclusion of
dispatch instructions issued through the computerized BEEP Stack. (GEN-1 at 6:14-6:22
and 45:1-45:22; GEN -23 at 4:1-4:10).

31 *Enron's Position:* The operating point on the heat rate curve should be
determined by reviewing actual metered data- not hypothetical data. (ENR-1 22:7-24:3).

32 *Powerex Corp.'s Position:* Use the actual operating level of each unit during the
applicable interval. (PWX-1 at 18:8-14).

33 *Staff Position:* Staff does not oppose the ISO's position.

34 **D. What units are eligible to set the MMCP for each 10-minute
interval in the refund period?**

35 **1. Is eligibility to set the MMCP contingent upon a unit having
had a bid in the BEEP Stack?**

36 *ISO Position:* Only those units with bids dispatched in merit order through the
BEEP system (and "acknowledged" by the units' operators) so that they were actually
eligible to set the market clearing price in the ISO's Real Time Market should be eligible
to set the mitigated price for each interval. (ISO-1 at 41:1-52:22; ISO-19 at 40:1-42:10,
53:12-54:6).

37 The California Parties Position: The ISO properly limited eligibility to set the MMCP to units that had bid into the BEEP Stack (i.e. energy bids submitted to the ISO in connection with bids in the ISO's ancillary services and supplemental energy markets), consistent with the Commission's Refund Orders. (CAL-19 at 9:14 to 11:4; CAL-21 at 13:16 to 15:7; CAL-21 at 50:6 to 61:21; CAL-26 at 5:17 to 5:23; CAL-26 at 6:2 to 6:5; CAL-26 at 6:8 to 7:16(ending with "market"); CAL-26 at 19:1 to 19:11; CAL-26 at 19:13 to 19:15; CAL-26 at 19:17 to 20:2; CAL-26 at 20:9 to 21:14; CAL-26 at 21:20 to 25:5). Of the various California markets, the merit order dispatch in the BEEP stack provides the best proxy for the results that would have existed in an efficient, competitive market. (CAL-21 at 14:11 to 15:7).

38 *California Generators' Position:* Any unit that the ISO dispatched for energy to serve real-time demand in an interval should be eligible to set the MMCP in such interval. (GEN-1 at 19:12-32:5). Eligibility cannot be limited to BEEP Stack units because the BEEP Stack was not the primary mechanism of the ISO for meeting system imbalance energy requirements during the refund period. (GEN-1 at 22:6-28:9). The Commission's Orders do not restrict eligibility to set the MMCP to units that had bids in the BEEP Stack. (GEN-1 at 28:10-32:5).

39 *Enron's Position:* The BEEP Stack requirement is an artificial constraint put on the selection criteria for marginal units and is not supported by FERC orders, the evidence in this case or economic theory. (ENR-1 24:5 to 29:20).

40 *Sellers' Position:* No. Dr. Cicchetti testifies that the marginal cost of the most expensive source of supply dispatched in the real time market should be used to establish the MMCP. (SEL-1, at page 28, line 1-18; page 29, line 8-10, 23-24; page 30, line 2; Exhibit SEL-3).

41 *Powerex Corp.'s Position:* No. The MMCP should be calculated using the marginal cost of the most expensive source of supply dispatched in the real time market, which includes energy supplied to the ISO from units outside of the BEEP stack. (PWX-1 at 5:18-19, 6:1-18, ~~7:1-3, 12:7~~7:1-3, 12:7 to 17:2; PWX-5 at 8:3 to 14:13; PWX-46 at 3:9-21; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

42 *PPL Parties' Position:* No. The CAISO improperly excludes many transactions outside the BEEP stack even though those transactions were a significant portion of the energy supplied to the CAISO, were integral to the marketplace, and are subject to refund. (PPL-1 at 12:12 - 17:11).

43 *Staff Position:* The Commission said to select from units dispatched in the real-time imbalance market which means units dispatched through the BEEP stack. (S-26 at 43:15-45:4).

2. Are the following energy types eligible to set the MMCP?

a. BEEP Supplemental?

ISO Position: Yes, if dispatched in merit order. (ISO-1 at 6:10-7:2, 41:1-45:2).

The California Parties Position: Yes, the ISO properly limited eligibility to set the MMCP to units that had bid into the BEEP stack, including those units that had submitted Supplemental Energy bids. (CAL-1 at 3:11-19; CAL-19 at 2:10-12).

California Generators' Position: Units providing load-following supplemental energy through the BEEP Stack were serving system real-time energy needs and should be eligible to set the MMCP. (GEN-1 at 32:15-33:2).

Enron's Position: Yes, although units allowed to set MMCP should not be constrained to those in the BEEP stack. (ENR-1 24:19-29:20).

Sellers' Position: Dr. Cicchetti conceptually would prefer to have all of these included. (SEL-1, page 15, line 3 – page 18, line 20).

Powerex Corp.'s Position: Yes. (PWX-1 at 5:18-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

Staff Position: Yes. (S-26 at 44:17-45:4).

b. BEEP Spin, Non-spin and Replacement A/S?

ISO Position: Yes, if dispatched in merit order. (ISO-1 at 6:10-7:2, 41:1-45:2).

The California Parties Position: Yes, the ISO properly limited eligibility to set the MMCP to units that had bid into the BEEP stack, including those units that had submitted Energy bids associated with Spinning, Non-Spinning, and Replacement Reserves. (CAL-1 at 3:11-19; CAL-19 at 2:10-12).

California Generators' Position: Units providing ancillary services through the BEEP Stack were serving system real-time energy needs and should be eligible to set the MMCP. (GEN-1 at 32:24-33:2).

Enron's Position: Yes, although units allowed to set MMCP should not be constrained to those in the BEEP stack. (ENR-1 24:19-29:20).

Sellers' Position: Dr. Cicchetti conceptually would prefer to have all of these included. (SEL-1, page 15, line 3 – page 18, line 20).

Powerex Corp.'s Position: Yes. (PWX-1 at 5:18-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

60 *Staff Position:* Yes, assuming this refers to the BEEP dispatch of energy
associated with these ancillary services.

61 **c. OOS Non-congestion Imbalance Energy
Supplemental?**

62 *ISO Position:* No. (ISO-1 at 13:1-13, 41:1-45:14, 47:7-11; ISO-19 at 40:1-
42:10).

63 *The California Parties Position:* No, the ISO properly excluded from eligibility
to set the MMCP units that were dispatched by the ISO for reasons other than the
economic merit order dispatch in the BEEP stack. Thus, out of sequence energy -- which
by definition was not dispatched in merit order in the BEEP stack -- was properly excluded.
(CAL-1 at 3:11-19; CAL-19 at 2:10-12).

64 *California Generators' Position:* Out-of-sequence dispatches of units with
BEEP Stack bids that were made for general system reliability reasons and not for
congestion-related local reliability reasons should be eligible to set the MMCP. (GEN-1
at 33:4-35:4; GEN-19 at 4:6-4:11; 14:13-15:8).

65 *Enron's Position:* Yes, although units allowed to set MMCP should not be
constrained to those in the BEEP stack. (ENR-1 24:19-29:20).

66 *Sellers' Position:* OOS calls to meet locational, rather than system reliability
requirements were incorrectly excluded by the ISO. (SEL-1, page 28, line 7-18).

67 *Powerex Corp.'s Position:* Yes. (PWX-1 at 5:18-19, 6:1-18, 7:1-3, 12:7 to
17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to
9:15).

68 *PPL Parties' Position:* To the extent these transactions were used to supply
imbalance energy to California electricity market they should be included. (PPL-1 at
12:12-17:11).

69 *Staff Position:* Yes. S-26 at 50:14-50:23.

70 **d. OOS Non-congestion Imbalance Energy Spin, Non-
Spin and Replacement A/S?**

71 *ISO Position:* No. (ISO-1 at 13:1-13, 41:1-45:14, 47:7-11; ISO-19 at 40:1-
42:10).

72 *The California Parties Position:* No, the ISO properly excluded from eligibility
to set the MMCP units that were dispatched by the ISO for reasons other than the
economic merit order dispatch in the BEEP stack. Thus, out of sequence energy -- which
by definition was not dispatched in merit order in the BEEP stack -- was properly excluded.
(CAL-1 at 3:11-19; CAL-19 at 2:10-12).

73 *California Generators' Position:* Out-of-sequence dispatches of units with
BEEP Stack bids that were made for general system reliability reasons and not for
congestion-related local reliability reasons are eligible to set the market clearing price
under the ISO Tariff and should be eligible to set the MMCP. (GEN-1 at 33:4-35:4; GEN-
19 at 14:13-15:8).

74 *Enron's Position:* Yes, although units allowed to set MMCP should not be
constrained to those in the BEEP stack. (ENR-1 24:19-29:20).

75 *Sellers' Position:* OOS calls to meet locational, rather than system reliability
requirements were incorrectly excluded by the ISO. (SEL-1, page 28, line 7-18).

76 *Powerex Corp.'s Position:* Yes. (PWX-1 at 5:18-19, 6:1-18, 7:1-3, 12:7 to
17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to
9:15).

77 *PPL Parties' Position:* To the extent these transactions were used to supply
imbalance energy to California electricity market they should be included. (PPL-1 at
12:12 - 17:11).

78 *Staff Position:* Staff has not taken a position on this issue.

79 **e. OOS Congestion?**

80 *ISO Position:* No. (ISO-1 at 13:1-13, 41:1-45:14, 47:7-11; ISO-19 at 40:1-
42:10).

81 *The California Parties Position:* No, the ISO properly excluded from eligibility
to set the MMCP units that were dispatched by the ISO for reasons other than the
economic merit order dispatch in the BEEP stack. Thus, out of sequence energy -- which
by definition was not dispatched in merit order in the BEEP stack -- was properly excluded.
(CAL-1 at 3:11-19; CAL-19 at 2:10-12).

82 *California Generators' Position:* Out-of-sequence units dispatched out-of-
merit for congestion/local reliability reasons should not be eligible to set the MMCP,
since they are presumed not dispatched for system energy needs. (GEN-1 at 33:4-34:10).

83 *Sellers' Position:* OOS calls to meet locational, rather than system reliability
requirements were incorrectly excluded by the ISO. (SEL-1, page 28, line 7-18).

84 *Powerex Corp.'s Position:* Yes. (PWX-1 at 5:18-19, 6:1-18, 7:1-3, 12:7 to
17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to
9:15).

85 *Staff Position:* No. S-26 at 50:14-50:23 (not eligible to set market clearing
price).

86 **f. OOM?**

ISO Position: No. (ISO-1 at 13:15-15:16, 41:1-45:14, 46:16-47:19; ISO-19 at 40:1-42:10).

The California Parties Position: No, the ISO properly excluded from eligibility to set the MMCP units that did not submit bids for the ISO operated Imbalance Energy markets. Thus, out of market energy -- which by definition was sold to the ISO outside of the organized ISO markets -- was properly excluded. (CAL-1 at 3:11-19; CAL-19 at 2:10-12; CAL-21 at 53:11 to 56:2; CAL-21 at 56:3 to 56:13).

California Generators' Position: Since the ISO is authorized to procure out-of-market ("OOM") energy to meet system energy needs when the BEEP Stack is exhausted or unable to meet such needs, OOM units should be eligible to set the MMCP. (GEN-1 at 35:6-36:23; GEN-19 at 12:5-12:11). ISO may have misclassified certain transactions as OOM. (GEN-19 at 11:10-14:12).

Enron's Position: Yes, units providing OOM energy should be eligible to set the MMCP, to avoid distortions created by the small and potentially biased set of units in the BEEP stack. (ENR-1 25:4 to 29:20; ENR-5).

Sellers' Position: OOM purchases needed for system reliability but outside the ISO actual control area were incorrectly excluded by the ISO. (SEL-1, page 28, line 7-18).

Powerex Corp.'s Position: Yes. (PWX-1 at 5:18-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

PPL Parties' Position: The CAISO improperly excludes OOM transactions, supplied largely by CSG members, even though those transactions were a significant portion of the energy supplied to the CAISO, were integral to the marketplace, and are subject to refund. (PPL-1 at 12:12 - 17:11).

Staff Position: No. (S-26 at 47:11-48:17).

g. Residual Energy?

ISO Position: No. (ISO-1 at 10:12-11:2, 41:1-45:14, 46:17-22; ISO-19 at 53:12-54:6).

The California Parties Position: No, the ISO properly excluded from eligibility to set the MMCP units that provided more or less energy in real-time for reasons other than the economic merit order dispatch in the BEEP stack. Thus, residual energy -- which is the incidental result of ramping to reach Acknowledged Operating Targets -- was properly excluded. (CAL-1 at 3:11-19; CAL-19 at 2:10-12).

California Generators' Position: Units providing residual energy are allowed to set the clearing price under the Commission's mitigation orders and should be eligible to set the MMCP. (GEN-1 at 37:1-38:14).

Sellers' Position: Residual imbalance energy previously dispatched was incorrectly excluded by the ISO. (SEL-1, page 28, line 7-18).

Powerex Corp.'s Position: Yes. (PWX-1 at 5:18-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

Staff Position: No. (Ex. S-26 at 51:24-52:13).

h. Regulation?

(ISO-1 at 11:4-21, 41:1-45:14, 47:1-5; ISO-19 at 53:12-54:6).

The California Parties Position: No, the ISO properly excluded from eligibility to set the MMCP units that were dispatched by the ISO for reasons other than the economic merit order dispatch in the BEEP stack. Thus, energy associated with regulation service -- which is produced for reliability reasons in response to instantaneous differences between load and supply rather than as a result of the merit order dispatch in the BEEP stack -- was properly excluded. (CAL-1 at 3:11-19; CAL-19 at 2:10-12).

California Generators' Position: Units dispatched for regulation should be not eligible to set the MMCP. (GEN-19 at 9:1-9:4).

Sellers' Position: Regulation energy needed but not ramped up or down in any specific merit order was incorrectly excluded by the ISO. (SEL-1, page 28, line 7-18).

Powerex Corp.'s Position: Yes. (PWX-1 at 5:18-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

Staff Position: No. (S-26 at 45:24-46:16 and 50:32-51:11).

i. Other Imbalance Energy?

ISO Position: No. (ISO-1 at 12:1-22, 15:18-16:23, 41:1-45:14, 47:13-23, 49:21-50:4).

The California Parties Position: No, the ISO properly excluded from eligibility to set the MMCP units that were dispatched by the ISO for reasons other than the economic merit order dispatch in the BEEP stack. Thus, other energy sources -- such as energy pre-arranged in the PX markets, energy resulting from reliability must run agreements, uninstructed energy that the ISO had not requested, and energy associated with bilateral transactions -- was properly excluded. (CAL-1 at 3:11-19; CAL-19 at 2:10-12; CAL-21 at 55:9 to 56:2; CAL-21 at 57:18 to 61:21; CAL-26 at 20:15 to 21:8).

California Generators' Position: While uninstructed energy has been excluded, CTs operating for their minimum run time are eligible to set the MMCP. (GEN-1 at 41:11-41:15). RMR and other local reliability energy dispatches have not been treated as eligible to set the MMCP. (GEN-1 at 40:3-41:9).

Enron's Position: Units providing energy in the Cal PX market should also be eligible to set the MMCP. (ENR-1 32:5 to 34:3).

Powerex Corp.'s Position: Yes. (PWX-1 at 5:18-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

Staff Position: Staff supports Mr. Tranen's proposal to include combustion turbine units, dispatched by the ISO, for their entire minimum-run time. (S-26 at 52:14-52:27). Staff opposes Dr. Cicchetti's proposal to include RMR units. (S-26 at 52:28-53:3).

3. If eligibility of a unit is contingent upon having had a bid in the BEEP Stack, what approach to eligibility should be taken during intervals in which there were incremental dispatch instructions from the BEEP Stack?

ISO Position: During intervals when a gas-fired unit was dispatched in merit order to provide incremental energy, the marginal unit is the gas-fired unit with the highest marginal operating costs that had an acknowledged dispatch for incremental energy. (ISO-16 at 4:13-5:5:2; ISO-19 at 42:12-51:6).

The California Parties Position: When there were units operating in response to incremental dispatch instructions from the BEEP stack, the ISO properly chose from those units that unit with the highest marginal operating cost during a particular interval. (CAL-1 at 3:11-19; CAL-19 at 2:10-12; CAL-21 at 22:3 to 26:4; CAL-21 at 27:8 to 29:7).

California Generators' Position: Eligibility should not be limited to units that had bids in the BEEP Stack, but, in all events, units with incremental dispatch instructions should be treated on the same basis as units with decremental instructions and the highest cost unit with such an instruction should be chosen. (GEN-1 at 7:1-7:8; 47:10-47:23; GEN-19 at 6:15-7:14).

Enron's Position: Eligibility of units should not be contingent upon having a bid in the BEEP stack, as the BEEP stack was small and potentially distorted by ISO actions for much of the period. (ENR-1 25:4 to 29:20).

Sellers' Position: The unit actually dispatched with the highest marginal running costs should set the MMCP. Hypothetical or assumed dispatch should not be used. (SEL-1, page 31, line 8- page 46, line 20; SEL-11, page 7, line 8 – page 12, line 7).

Powerex Corp.'s Position: Eligibility of a unit should not be contingent upon having a bid in the BEEP Stack. All units that supplied energy to the ISO to help to maintain its system are eligible. (PWX-1 at 5:13-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

123 *Staff Position:* Staff supports the ISO's position of preferring incremental over
decremental dispatch for choosing the marginal unit. (S-26 at 39:4-40:12).

124 **4. If eligibility of a unit is contingent upon having had a bid in
the BEEP Stack, what approach to eligibility should be
taken during intervals in which there were decremental
dispatch instructions, but not incremental dispatch
instructions, from the BEEP Stack?**

125 *ISO Position:* During intervals when no gas-fired units were dispatched in merit
order to provide incremental energy, the marginal unit is the gas-fired unit with the
lowest marginal operating costs that had an acknowledged decremental dispatch
instruction. (ISO-1 at 37:1-38:9; ISO-16 at 5:4-20, 6:17-7:10; ISO-19 at 42:12-51:6).

126 *The California Parties Position:* When there were decremental dispatch
instructions, but no incremental dispatch instructions, the ISO properly looked to the
unit on the margin in the BEEP stack, which was the decremental unit with the lowest
marginal operating cost. (CAL-1 at 3:11-19; CAL-19 at 2:10-12).

127 *California Generators' Position:* Eligibility should not be limited to units that
had bids in the BEEP Stack, but, in all events, the highest cost unit with a decremental
instruction should be selected to set the MMCP rather than selecting the lowest cost
units with a decremental instruction. (GEN-1 at 48:1-48:4; GEN-19 at 7:15-7:21).

128 *Enron's Position:* Eligibility of units should not be contingent upon having a
bid in the BEEP stack, as the BEEP stack was small and potentially distorted by ISO
actions for much of the period. (ENR-1 25:4 to 29:20; ENR-5).

129 *Sellers' Position:* The unit actually dispatched with the highest marginal
running costs should set the MMCP. Hypothetical or assumed dispatch should not be
used. (SEL-1, page 31, line 8 - page 46, line 20; SEL-11, page 7, line 8 - page 12, line
7).

130 *Powerex Corp.'s Position:* Eligibility of a unit should not be contingent upon
having had a bid in the BEEP Stack. The real time metered data should be used, which
does not use the incremental or decremental labels and the correct approach is to use the
most expensive unit from the set running, as identified in the ISO's data file *rt_act.csv*.
(PWX-1 at 5:13-19, 6:1-23, 7:1-3, 12:7 to 17:2; PWX-5 at 4:13 to 5:2, 12:22 to 13:12;
PWX-46 at 3:9-21; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

131 *Staff Position:* Staff supports the ISO's position of choosing the unit with the
lowest decremental cost as the marginal unit. (S-26 at 38:21-38:23 and 40:21-40:37).

132 **5. What approach to determining the unit that sets the MMCP
should be taken during intervals in which no eligible unit
was dispatched for imbalance energy?**

ISO Position: During these intervals, the marginal unit is the gas-fired unit with the lowest marginal operating costs that had a bid for incremental energy submitted in the ISO's BEEP system. (ISO-1 at 38:10-39:14; ISO-16 at 6:1-7:10; ISO-19 at 52:1-53:10).

The California Parties Position: When there were no incremental or decremental dispatch instructions in an interval, the ISO properly looked to the unit on the margin in the BEEP stack, which was the incremental unit that would have next been dispatched if a dispatch instruction was issued. (CAL-26 at 7:17-21; CAL-26 at 22:4 to 24:19 (ending at "to"); CAL-26 at 24:19 (beginning at "non-PGA") to 25:5).

California Generators' Position: During intervals in which no eligible unit was dispatched for real-time energy, the MMCP should be determined by "filling in the curve," i.e., by taking the average of the MMCP calculated for the interval before and the interval after, rather than by choosing the unit with the lowest cost that had a BEEP Stack bid. (GEN-1 at 7:3-7:8 and 46:6-46:17; GEN-19 at 8:1-8:16).

Sellers' Position: The unit actually dispatched with the highest marginal running costs should set the MMCP. Hypothetical or assumed dispatch should not be used. (SEL-1, page 31, line 8 - page 46, line 20; SEL-11, page 7, line 8 - page 12, line 7).

Powerex Corp.'s Position: Eligibility of a unit should not be contingent upon having had a bid in the BEEP Stack. The real time metered data should be used, which does not use the incremental or decremental labels and the correct approach is to use the most expensive unit from the set running, as identified in the ISO's data file rt_act.csv. (PWX-1 at 5:13-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 4:13 to 5:2, 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

Staff Position: Staff supports the ISO's position. (S-26 at 37:11-38:14).

6. Should units running on fuels other than natural gas be eligible to set the MMCP?

All Parties' Stipulation: Units running on fuels other than natural gas should not be eligible to set the MMCP in those intervals in which they were operating on fuels other than natural gas, as provided in the Heat Rate Stipulation.

7. Should units that did not show positive or negative responses to BEEP Stack dispatch instructions be eligible to set the MMCP?

ISO Position: The ISO did not factor into its determination of the marginal unit whether or not a unit actually responded to an acknowledged ISO dispatch instruction. However, it may be appropriate to disqualify those units that did not deliver incremental energy pursuant to ISO dispatches from eligibility to set the mitigated price. (ISO-19 at 39:1-15).

The California Parties Position: Units that failed to respond to BEEP stack dispatch instructions should not be counted as if they had run; such units should be excluded from eligibility to set the MMCP. (CAL-1 at 21:6 to 24:10).

California Generators' Position: BEEP Stack dispatch instructions should not be a criterion for eligibility to set the MMCP. Units that did not actually run in response to ISO dispatch instructions should, however, be excluded from the analysis (GEN-1 at 19:20-28:9; GEN-23 at 3:10-3:23).

Enron's Position: Eligibility of units should not be contingent upon having a bid in the BEEP stack, as the BEEP stack was small and potentially distorted by ISO actions for much of the period. (ENR-1 25:4 to 29:15; ENR-5).

Powerex Corp.'s Position: This issue is not relevant because the real time metered data should be used, which does not use the incremental or decremental labels and the correct approach is to use the most expensive unit from the set running, as identified in the ISO's data file *rt_act.csv*. (PWX-1 at 5:13-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 4:13 to 5:2, 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

Staff Position: If unit fails to respond it cannot set BEEP stack clearing price and should not set the MMCP. (S-26 at 43:4-43:13 and 56:21-57:6).

8. Should units outside the ISO control area be eligible to set the MMCP?

ISO Position: No. (ISO-1 at 40:13-22; ISO-19 at 57:17-59:6).

The California Parties Position: The ISO properly excluded from its analysis supplies outside of the ISO control area -- it is generally not possible to determine the heat rates for supplies originating outside of the control area. (CAL-19 at 9:14 to 11:4; CAL-21 at 13:16 to 14:8; CAL-21 at 14:11 to 15:7).

California Generators' Position: MMCPs were calculated on a data base that included only generating units within the ISO Control Area. (GEN-1 at 5:15).

Arizona Electric Power Cooperative, Inc. Position: Units outside the ISO control area should be eligible to set the MMCP (AEP-12 at 3:10-3:18 and 4:1-5:22, AEP-13).

Sellers' Position: Dr. Cicchetti believes units outside the ISO control area should be included in the determination of MMCP. (SEL-1, page 15, line 3 – page 18, line 20).

Powerex Corp.'s Position: Yes. Any generator that supplied energy to help maintain balance in the ISO system should be included. (PWX-1 at 5:13-19, 6:1-18, 7:1-3, 12:7 to 17:2; PWX-5 at 8:3 to 14:13; PWX-47 at 4:6; PWX-52 at 2:15-20, 3:1 to 4:14, 7:3 to 9:15).

155 *PPL Parties' Position:* Yes. The CAISO improperly excludes many units
outside the ISO control area though those transactions were a significant portion of the
energy supplied to the CAISO, were integral to the marketplace, and are subject to
refund. (PPL-1 at 12:12 - 17:11).

156 *Staff Position:* Units outside California are not eligible to set MMCP. (S-26 at
54:15-55:24).

157 **E. Additional Issues Related to the MMCP Calculation.**

158 **1. What is the proper use of gas price indices for the
calculation of the MMCP for each interval?**

159 *ISO Position:* The gas price used in calculating the mitigated price should be
the average of the published midpoint daily spot gas prices reported in the indices
required to be used by the Commission for the northern and southern zones. (ISO-5 at
39:16-41:3; ISO-20 at 13:3-16:13).

160 *The California Parties Position :* The ISO properly used the simple average of
the daily midpoint natural gas prices, reported by the indices selected by the
Commission, a method which is mandated by the Commission's Refund Orders and
Judge Wagner's July 12 Recommendation, and which is consistent with the way in which
the spot gas markets operate. (CAL-22 at 5:7 to 7:4; CAL-22 at 14:1 to 15:15; CAL-22 at
22:23 to 23:4).

161 *California Generators' Position:* MMCPs were calculated utilizing the same
gas prices as the ISO (with one minor exception). (GEN-1 at 4:1-4:2).

162 *Sellers' Position:* The ISO used an incorrect method to determine gas prices,
based upon midpoints, averages of recalculated averages and volume-weighted averages.
The marginal natural gas cost for calculating MMCP is the "high" or "peak" price on a
particular day and not the midpoint price, especially when the range of prices is quite large.
Common high prices are conservative surrogates for the spot prices of natural gas. Thus,
for SP15, the proper gas price index is the common high price reported in Gas Daily. For
NP-15, the proper gas price index is the average of the common high price reported in Gas
Daily and the high prices reported by NGI and Inside FERC. (SEL-1, page 46, line 21-page
56, line 7; SEL-3; SEL-6; SEL-7; SEL-11, page 12, line 8 – page 14, line 15).

163 *Powerex Corp.'s Position:* Common High Value defined and published in Gas
Daily which is a McGraw Hill publication. (PWX-7:10-18; PWX-46 at 2:26 to 3:7).

164 *PPL Parties' Position:* The proper gas price index for the purpose of
calculating the MMCP, which is a spot market price, is Gas Daily's published "common
high price" index for natural gas, which more accurately reflects the cost incurred to
supply spot market electricity than does the index selected by the CAISO. (PPL-1 at 22:12
- 28:17).

165 *Staff Position:* Staff does not oppose the ISO's approach.

166 **2. To the extent hourly MMCPs are calculated based upon 10-**
167 **minute interval MMCPs, should the interval MMCPs be**
168 **averaged on a weighted or simple average basis?**

167 *ISO Position:* Simple. (ISO-1 at 55:11-56:14; ISO-19 at 60:10-66:8).

168 *The California Parties Position:* The ISO properly developed hourly MMCPs
169 by taking the simple average of the 10-minute MMCPs, rather than developing some
170 complex weighting that is not called for in the Refund Orders. (CAL-1 at 3:11-19; CAL-
171 19 at 2:10-12).

169 *California Generators' Position:* MMCPs for each hour, to be used in
170 calculating refunds in the PX spot markets, should be calculated using a weighted average
171 of the 10-minute interval prices, with the weighting based on real-time generation by
172 eligible units. (GEN-1 at 48:8-50:11).

170 *Powerex Corp.'s Position:* Simple average basis. (PWX-5 at 28:7-8).

171 *Staff Position:* "Average" implies simple average unless Commission instructs
172 otherwise. (S-26 at 42:3-43:3).

172 **3. Is there a separate formula for calculating MMCPs for**
173 **ancillary services and, if so, what is it?**

173 *Testimony on this issue will not be introduced in the hearing on Issue 1 and*
174 *is deferred until the hearing on Issues 2 and 3.*